



## A STUDY ON SĀDHYA – ASĀDHYATĀ OF DISEASES AS PER TAILA BINDU PARIKSHA OF MUTRA WITH SPECIAL REFERENCE TO ERYTHROCYTE SEDIMENTATION RATE (ESR)

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### ABSTRACT

Taila Bindu Pariksha of mutra, one of the mutra pariksha, first described by *Acharya Yogratanakar* in 17<sup>th</sup> century to determine the sadhya – asdhyata (curable and incurable) that is prognosis of a disease. In modern system of medicine there are multiple indicators developed for prognosis of various diseases. As ESR is a good indicator for inflammatory activity in our body so it can be taken as a prognostic tool because of its low cost and reproducibility. As Taila Bindu Pariksha for mutra for determining sadhya-asadhyata is not commonly practiced in today's modern era so in this study, an effort has been made to find out if there is any relationship between sadhya asadhyata by taila bindu pariksha and ESR value of same patient. The study was conducted at Govt. Ayurvedic College and Hospital with 277 numbers of patients and was examined for both ESR and taila bindu pariksha of urine and the data were collected by a specially designed proforma. From the data it was statistically found that for non communicable and chronic diseases sadhya-asadhyata can be determined by observing the ESR value. On the other hand for communicable and acute diseases sadhya-asadhyata cannot be determined by observing the ESR value.

**KEYWORDS :** Taila Bindu Pariksha, sadhya – asdhyata, prognosis, ESR, diseases.

### INTRODUCTION:

In ancient system of medicine or in modern system of medicine sadhya asadhyata i.e prognosis has always been given very much importance in treating a disease. While describing about the importance of sadhya asdhyata acharya Charaka has said that is if a vaidya after differentiating the sadhya – asadhyata of diseases, in proper time promptly start the treatment, the disease will quickly get cured. and if a vaidya try to treat the asadhy avyadhi he will surely loose wealth and fame along with he will lose popularity and will be ashamed by the society.<sup>1</sup> Again acharya Yogratanakar has also opine that if a physician after observing the symptoms, desh and kal along with considering the strength, start the treatment he surely gets fame and wealth.<sup>2</sup> Earlier determination of sadhya asadhyata was purely based on only subjective parameters<sup>3</sup> but in 17<sup>th</sup> century Acharya Yogratanakar developed an objective parameter known as Taila Bindu Pariksha of mutra for the determination of sadhya asadhyata. This pariksha is done by dropping a drop of oil on diseased person's urine and the rate, shape and direction of spread of the oil drop is observed to find out the sadhya-asadhyata of a disease<sup>4</sup>. In modern system of medicine there are multiple indicators developed for prognosis of various diseases. As ESR is a good indicator for inflammatory activity in our body so it can be taken as a prognostic tool because of its low cost and reproducibility. The present work entitled with "A study on sadhya-asadhyata of diseases as per taila bindu pariksha of mutra with special reference to erythrocyte sedimentation rate (ESR)" with an aim to find if there is any relationship between sadhya asdhyata and ESR value of diseases by performing the taila bindu pariksha of mutra as per classics and valid recent standardization methods.

### MATERIALS AND METHOD:

#### SAMPLE SIZE:

The study was performed in 277 patients of Govt. Ayurvedic College and Hospital.

#### SELECTION OF PATIENTS:

All the patients were randomly selected from IPD and Central Laboratory of Govt. Ayurvedic College and Hospital.

#### INCLUSION CRITERIA:

All the age group who visited with different ailment at Govt. Ayurvedic College and Hospital irrespective of any sex, community and locality were included for the study.

#### EXCLUSION CRITERIA:

- I. Patients with pregnancy and child birth were excluded from the study as ESR is generally increased in these conditions.
- II. Patient having drug history of Dextran, Methyldopa, OCP, Penicillin, Theophylline were excluded as they tend to increase the ESR.
- III. In Taila Bindu Pariksha the undefined shape and spread of taila were excluded.

#### ASSESSMENT CRITERIA:

1. Those subjects who were diagnosed as any disease by the specially designed proforma were selected for the study.
2. The term diseases as mentioned in aim and objective in the present study was considered as<sup>5</sup>:
  - Communicable diseases.
  - Non communicable diseases.
  - Acute diseases.
  - Chronic diseases.
3. Urine of all the selected patient's were investigated for Taila Bindu Pariksha as described by Yogratanakar and following criteria were assessed to collect the data.

#### a. For the study of spreading nature<sup>4</sup>:

- |                 |   |                 |
|-----------------|---|-----------------|
| • Vikashitam    | - | Spread quickly. |
| • Na vikashitam | - | No spreading.   |
| • Talage        | - | Sink on bottom. |

#### b. For the study of direction of the oil drop<sup>6</sup>:

- |           |   |             |
|-----------|---|-------------|
| • Purva   | - | East.       |
| • Pachim  | - | West.       |
| • Uttar   | - | North.      |
| • Dakshin | - | South.      |
| • Ishan   | - | North-East. |
| • Agni    | - | South-East. |
| • Nairikt | - | South-West. |
| • Vayavya | - | North-West. |

#### c. For the study of shapes of the oil drop<sup>6</sup>:

- Shapes like Tadang(Pond), Kamal(Lotus), Chatra (Umbrella), Toran(An arch), Harmoy(Castle), Gatrakhanda (Body parts) are studied under geometrical circular and semicircular shapes.
- Shapes like Kurma(Tortoise), Shouriv(Buffalo),

Karandmandal(Bee), Shirahen nara(Body without head), Hamsa(Swan), Karand(Duck), Gaja(Elephant), **are studied under circular shapes having different projections like structures.**

- Shapes like Musala (Wooden pastel), Lagud (stick), Sharam (Arrow), **are studied under geometrical straight line shapes.**
- The shape Halam (plough) is **studied under geometrical shape of intersection 3 lines.**
- The shape Tri-chatuspatham is **studied under 3 way or 4 way junction.**
- The shape Chalini is **studied under sieve or net like shape.**
- The shape Sarpakar is **studied under wavy line like shapes.**
- The shape Mukta is **studied under geometrical spherical shape.**

d. Time of collection and observation of urine<sup>7</sup>:

**Nisha ante ghatika chatustaye** - One(1) hour thirty six (36) min before sun rise.

**Surya udaye tat satatam parikshite** - Observation after sun rise.

In the study 1hour 36 min gap between collection and observation is maintained throughout the study.

e. Volume of urine for the study<sup>8</sup>:

200 ml urine was chosen as the standard volume for this study.

f. Type of oil for the study<sup>8</sup>:

Sesame oil from black variety (*Sesamum indicum linn*) was taken as the standard oil for the study.

g. Size and shape of the testing container<sup>8</sup>:

Petri dish with 12 inches of circumference was chosen as the standard vessel for the study.

h. Height of the oil drop from the surface of urine<sup>8</sup>:

1 cm of height from the surface of the urine was chosen as the standard height for this study.

4. ESR of all the selected patient's were investigated by Westergren method at the end of one hour.

5. For the statistical analysis few groups were made considering –

T1 = Sadhya T2 = Krichcha sadhya T3 = Asadhya

6. Moreover for stastical analysis a null hypothesis was taken stating that, there is no significant difference between the means of ESR observed in different groups in relation to sadhya asadhyata or dosha involvement.

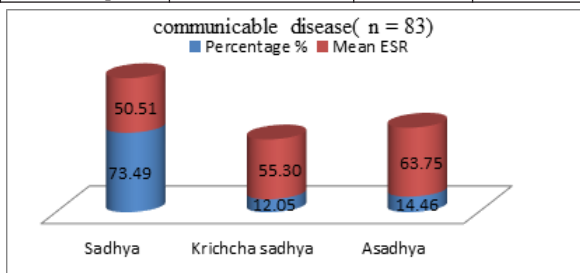
7. For stastical work Microsoft excel 2007 version was used.

**OBSERVATIONS AND RESULT:**

**Table No. 1.a**

**Sadhya asadhyata wise distribution of communicable diseases in relation with ESR:**

communicable disease	Number of patients ( n=83 )	Percentage %	(Mean SD) ESR
Sadhya	61	73.49	50.51 20.24
Krichcha sadhya	10	12.05	55.30 11.90
Asadhya	12	14.46	63.75 22.37



**Fig 1**

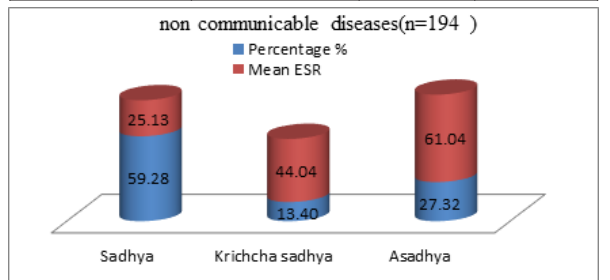
**Table No. 1.b**

**Statistical analysis between sadhya asadhyata and ESR value of patient's having Communicable Diseases.**

Group	Mean ESR	SD	Variance	df	F value	P value	Remark
T1	50.51	20.24	409.454	82	2.321	0.105	insignificant
T2	55.30	11.90	141.567				
T3	63.75	22.37	500.205				

**Table No. 2.a** Sadhya asadhyata wise distribution of non communicable diseases in relation with ESR:

Non communicable diseases	Number of patients ( n=194 )	Percentage %	(Mean SD) ESR
Sadhya	115	59.28	25.13 12.61
Krichcha sadhya	26	13.40	44.04 15.72
Asadhya	53	27.32	61.04 24.47



**Fig 2**

**Table No. 2.b**

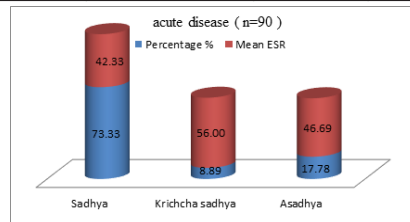
**Statistical analysis between sadhya asadhyata and ESR value of patients having Non Communicable Diseases.**

Group	Mean ESR	SD	Variance	df	F value	P value	In between groups		
							Q value	P value	
T1	25.13	12.61	159.16	193	82.76	< .001	T1:T2	7.48	< .001
T2	44.04	15.72	247.39				T1:T3	14.2	< .001
T3	61.04	24.47	598.84				T2:T3	6.72	< .001

**Table No. 3.a**

**Sadhya asadhyata wise distribution of acute diseases in relation with ESR**

Acute diseases	Number of patients ( n=90 )	Percentage %	(Mean SD) ESR
Sadhya	66	73.33	42.33 20.69
Krichcha sadhya	8	8.89	56.00 9.65
Asadhya	16	17.78	46.69 24.92



**Fig 3**

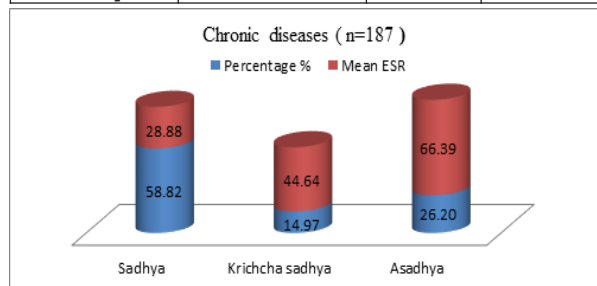
**Table No. 3.b**

**Statistical analysis between sadhya-asadhyata and ESR value of patient's having acute conditions.**

Group	Mean ESR	SD	Variance	df	F value	P value	Remark
T1	42.33	20.69	428.26	89	1.659	0.196	insignificant
T2	56.00	9.65	93.14				
T3	46.69	24.92	620.76				

**Table No. 4.a**  
**Sadhya asadhyata wise distribution of chronic diseases in relation with ESR :**

Chronic diseases	Number of patients (n=187)	Percentage %	(Mean SD) ESR
Sadhya	110	58.82	28.88 17.42
Krichcha sadhya	28	14.97	44.64 16.01
Asadhya	49	26.20	66.39 21.75



**Fig 4**

**Table No. 4.b**  
**Statistical analysis between sadhya asadhyata and ESR value of patient's having chronic conditions.**

Group	Mean ESR	SD	Variance	df	F value	P value	In between groups	
							Q value	P value
T1	28.88	17.42	303.50	186	70.56	< .001	T1: 15.76	< .001
T2	44.64	16.01	256.31				T1: 37.51	< .001
T3	66.39	21.75	473.37				T2: 21.74	< .001

**DISCUSSION:**

**1. Discussion on sadhya asadhyata and ESR value of patients having communicable diseases.**

Distribution of total 83 communicable disease reveals 73.49 % as Sadhya followed by 14.46 % Asadhya and 12.05 % Krichcha sadhya having (mean ± SD) ESR value 50.51 ± 20.24, 63.75 ± 22.37 and 55.30 ± 11.90 respectively. Here p value for the observed data is > 0.05, which is statistically insignificant.

As communicable diseases are nothing but infectious diseases it increases the levels of circulating inflammatory cytokines, fibrinogen, C-reactive protein, alpha-1 antitrypsin, haptoglobin, complement proteins etc.<sup>10,11</sup> Having high inflammatory activities, ESR is always tends to be high in this group. Hence even a disease with good prognosis also shows higher value of ESR in communicable diseases though in taila bindu pariksha it shows as sadhya that is easily curable disease. Hence along with the mean value of ESR for asadhya and krichcha sadhya, the mean value of ESR for sadhya diseases do not differ much.

This indicates that for communicable diseases the value of ESR for Sadhya, Krichcha sadhya and Asadhya are same, showing no relationship.

**2. Discussion on sadhya asadhyata and ESR value of patients having non communicable diseases.**

Distribution of total 194 non communicable diseases reveals 59.28 % as Sadhya followed by 27.32 % Asadhya and 13.40 % Krichcha sadhya having (mean ± SD) ESR value 25.13 ± 12.61, 61.04 ± 24.47 and 44.04 ± 15.72 respectively. Here sadhya diseases has low ESR value compared to that of asadhya diseases. P value for the observed data is <.001 which is statistically highly significant.

In non communicable diseases systemic inflammatory responses are found to be associated with diseases. Inflammatory responses is activated by damage-associated molecular patterns (DAMPs) that are released in response to physical, chemical or metabolic noxious stimuli, that is sterile agents, during cellular stress or damage.<sup>12</sup> Advancement of diseases leads to increase in cellular stress or damage leading to higher inflammatory responses. More over most of the advanced diseases also causes certain types of anemia like macrocytic or microcytic anemia leading to alteration of RBC morphology. With advancement of diseases, all these factors lead to increase in ESR.

This indicates that the value of ESR for Sadhya, Krichcha sadhya and Asadhya are not same for non communicable diseases, showing relationship.

**3. Discussion on sadhya asadhyata and ESR value of patients having acute diseases.**

Distribution of total 94 acute diseases reveals 73.33 % as Sadhya followed by 17.78 % Asadhya and 8.89 % Krichcha sadhya having (mean ± SD) ESR value 42.33 ± 20.69, 46.69 ± 24.92 and 56.00 ± 9.65 respectively. Here p value for the observed data is > 0.05, which is statistically insignificant.

As in our study all acute diseases are more or less lies under communicable diseases having high inflammatory activities leading to high ESR. Hence like that of communicable diseases, even a disease with good prognosis also shows higher value of ESR in acute diseases though in taila bindu pariksha it shows as sadhya that is easily curable disease.

This indicates that for acute diseases the value of ESR for Sadhya, Krichcha sadhya and Asadhya are same, showing no relationship.

**4. Discussion on sadhya asadhyata and ESR value of patients having chronic diseases.**

Distribution of total 187 chronic diseases reveals 58.82 % as Sadhya followed by 26.20 % Asadhya and 14.97 % Krichcha sadhya having (mean ± SD) ESR value 28.88 ± 17.42, 66.39 ± 21.75 and 44.64 ± 16.01 respectively. Here sadhya diseases has low ESR value compared to that of asadhya diseases. p value for the observed data is <.001, which is statistically highly significant.

In chronic diseases systemic inflammatory responses and acute on chronic responses are incorporated with it. Systemic inflammatory responses is activated by damage-associated molecular patterns (DAMPs) that are released in response to physical, chemical or metabolic noxious stimuli, during cellular stress or damage<sup>11,12</sup>. This systemic and acute on chronic inflammatory responses increase in the levels of circulating inflammatory cytokines, fibrinogen, C-reactive protein, alpha-1 antitrypsin, complement proteins etc which directly increases the ESR value and with the advancement of a disease the tissue destruction, cell hypoxia, cell necrosis processes increases more leading to increase in more inflammatory activity and thus further increases the ESR value. Along with it most of the advanced diseases also causes certain types of anemia like macrocytic or microcytic anemia leading to alteration of RBC morphology and also increases certain non inflammatory substances in blood which also increases the ESR more in advanced stage of the disease.

This indicates that the value of ESR for Sadhya, Krichcha sadhya and Asadhya are not same for chronic diseases, showing relationship.

**CONCLUSION**

The study of Sadhya-Asadhyata of diseases as per Taila

Bindu Pariksha in relation to ESR can be concluded as follows -  
 a. For communicable and acute diseases the value of ESR for Sadhya, Krichcha sadhya and Asadhya are same, showing no relationship, which means sadhya-asadhyata for communicable diseases cannot be determined by observing the ESR value.

b. For non communicable and chronic diseases the value for Sadhya, Krichcha sadhya and Asadhya diseases are not same, showing a relationship, which means sadhya-asadhyata for non communicable diseases can be determined by observing the ESR value.

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